THE UNIVERSITY OF WISCONSIN
COLLEGE OF AGRICULTURE

Madison 6

DEPARTMENT OF GENETICS

DEC 1962

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Dr. Joshua Lederberg
Department of Genetics
Stanford University Medical Center
Palo Alto, California

Dear Josh:

I am unaware of conclusive evidence from the higher plants that phase change is cell specific rather than tissue specific. One could argue on citrus, for example, in which an apogamous embryo (giving rise to a juvenile type seedling, in contrast to the adult parent tissue) arises from a single nucellar cell which becomes meristematic, that the change from adult to juvenile phase occurs, not in this cell initial, but at a later stage, as the cell mass forms an embryo. The same reservation applies to those apical meristems in which a single stem cell is the progenitor of all the cells in the tissue. In this class of material there is no known means of determining the phase of the single cell initial. The phase does not become apparent until much later, in the resulting shoot.

My principal objective in surveying the literature on phase change in higher plants was to learn whether any systems had come to light that might be amenable to further study from the general point of view developed in the Quarterly Review article. None were found that looked promising.

Nor does the tissue culture approach look hopeful. The same problems are encountered in cultivating plant, as animal, material: the karyotype invariably becomes unstable.

No one seems to have tried "grafting" single cells isolated from one bud onto another. This possibility should be explored using, say, anthocyanin color markers; I intend to discuss it with Wetmore and Thimann when I go to Cambridge, Massachusetts this weekend to spend Christmas with my daughter Mary (Ingraham) and her family.

With best regards,

Sincerely yours,

R. A. Brink

R. A. Brink
Professor of Genetics

RAB/niw